

SLOVENSKI
STANDARD

**SIST EN 60947-4-
1:2002/A1:2003**

februar 2003

Low-voltage switchgear and controlgear - Part 4-1: Contactors and motor-starters -
Electromechanical contactors and motor-starters

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ICS 29.130.20

Referenčna številka
SIST EN 60947-4-1:2002/A1:2003(en)

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EUROPEAN STANDARD

EN 60947-4-1/A1

NORME EUROPÉENNE

EUROPÄISCHE NORM

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English version

**Low-voltage switchgear and controlgear
Part 4-1: Contactors and motor-starters -
Electromechanical contactors and motor-starters
(IEC 60947-4-1:2000/A1:2002)**

Appareillage à basse tension
Partie 4-1: Contacteurs et démarreurs
de moteurs -
Contacteurs et démarreurs
électromécaniques
(CEI 60947-4-1:2000/A1:2002)

Niederspannungsschaltgeräte
Teil 4-1: Schütze und Motorstarter -
Elektromechanische Schütze
und Motorstarter
(IEC 60947-4-1:2000/A1:2002)

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This amendment A1 modifies the European Standard EN 60947-4-1:2001; it was approved by CENELEC on 2002-10-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this amendment the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

This amendment exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and United Kingdom.

CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

Foreword

The text of document 17B/1210/FDIS, future amendment 1 to IEC 60947-4-1:2000, prepared by SC 17B, Low-voltage switchgear and controlgear, of IEC TC 17, Switchgear and controlgear, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as amendment A1 to EN 60947-4-1:2001 on 2002-10-01.

The following dates were fixed:

- latest date by which the amendment has to be implemented
at national level by publication of an identical
national standard or by endorsement (dop) 2003-07-01
- latest date by which the national standards conflicting
with the amendment have to be withdrawn (dow) 2005-10-01

Annexes designated "normative" are part of the body of the standard.
Annexes designated "informative" are given for information only.
In this standard, annexes F and ZA are normative and annex E is informative.
Annex ZA has been added by CENELEC.

Endorsement notice

The text of amendment 1:2002 to the International Standard IEC 60947-4-1:2000 was approved by CENELEC as an amendment to the European Standard without any modification.

In the official version, for Bibliography, the following note has to be added for the standard indicated:

IEC 60664-1

NOTE

Harmonized as HD 625.1 S1:1996 (modified).

Replace annex ZA of EN 60947-4-1:2001 by the following:

Annex ZA
(normative)

**Normative references to international publications
with their corresponding European publications**

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60034-1 (mod)	1996	Rotating electrical machines Part 1: Rating and performance	EN 60034-1 + corr. February	1998 2000
A1	1997		A1	1998
A2	1999		A2	1999
			A11	2002
IEC 60034-11	1978	Part 11: Built-in thermal protection Chapter 1: Rules for protection of rotating electrical machines	-	-
IEC 60050-441	1984	International Electrotechnical Vocabulary (IEV) Chapter 441: Switchgear, controlgear and fuses	-	-
IEC 60076-1 (mod)	1993	Power transformers Part 1: General	EN 60076-1 A11	1997 1997
A1	1999		A1 A12	2000 2002
IEC 60085	1984	Thermal evaluation and classification of electrical insulation	HD 566 S1	1990
IEC 60112	1979	Method for determining the comparative and the proof tracking indices of solid insulating materials under moist conditions	HD 214 S2	1980
IEC 60255-8 (mod)	1990	Electrical relays Part 8: Thermal electrical relays	EN 60255-8	1998
IEC 60269-1	1998	Low-voltage fuses Part 1: General requirements	EN 60269-1	1998
IEC 60269-2	1986	Part 2: Supplementary requirements for fuses for use by authorized persons	EN 60269-2 A1	1995 1998
A1	1995		A1	1998
A2	2001	(fuses mainly for industrial application)	A2	2002

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60269-2-1 (mod) + A1 A2	1998 1999 2002	Part 2-1: Supplementary requirements for fuses for use by authorized persons (fuses mainly for industrial application) Sections I to V: Examples of types of standardized fuses	HD 630.2.1 S5 -	2002 -
IEC 60410	1973	Sampling plans and procedures for inspection by attributes	-	-
IEC 60947-1 (mod) A1 A2	1999 2000 2001	Low-voltage switchgear and controlgear Part 1: General rules	EN 60947-1 + corr. October A1 A2	1999 1999 2000 2001
IEC 60947-2 A1 A2	1995 1997 2001	Part 2: Circuit-breakers	EN 60947-2 + corr. June A1 A2	1996 1997 1997 2001
IEC 60947-3 A1	1999 2001	Part 3: Switches, disconnectors, switch-disconnectors and fuse-combination units	EN 60947-3 A1	1999 2001
IEC 60947-5-1 A1 A2	1997 1999 1999	Part 5-1: Control circuit devices and switching elements - Electromechanical control circuit devices	EN 60947-5-1 A1 A12 A2	1997 1999 1999 2000
IEC 61000-4-2 A1 A2	1995 1998 2000	Electromagnetic compatibility (EMC) Part 4-2: Testing and measurement techniques - Electrostatic discharge immunity test	EN 61000-4-2 A1 A2	1995 1998 2001
IEC 61000-4-3 (mod) A1 A2	1995 1998 2000	Part 4-3: Testing and measurement techniques - Radiated, radio-frequency, electromagnetic field immunity test	EN 61000-4-3 A1 A2	1996 1998 2001
IEC 61000-4-4 A1 A2	1995 2000 2001	Part 4-4: Testing and measurement techniques - Electrical fast transient/burst immunity test	EN 61000-4-4 A1 A2	1995 2001 2001
IEC 61000-4-5 A1	1995 2000	Part 4-5: Testing and measurement techniques - Surge immunity test	EN 61000-4-5 A1	1995 2001
IEC 61095 A1	1992 2000	Electromechanical contactors for household and similar purposes	EN 61095 + corr. March A1 + corr. April	1993 1993 2000 2001
IEC 61810-1	1998	Electromechanical non-specified time all-or-nothing relays Part 1: General requirements	EN 61810-1	1998
CISPR 11 (mod) A1	1997 1999	Industrial, scientific and medical (ISM) radio-frequency equipment - Radio disturbance characteristics - Limits and methods of measurement	EN 55011 A1	1998 1999

NORME
INTERNATIONALE
INTERNATIONAL
STANDARD

CEI
IEC

60947-4-1

2000

AMENDEMENT 1
AMENDMENT 1
2002-09

Amendement 1

Appareillage à basse tension

Partie 4-1:

**Contacteurs et démarreurs de moteurs –
Contacteurs et démarreurs électromécaniques**

(standards.iteh.ai)

Amendment 1 60947-4-1:2002/A1:2003

[https://standards.iteh.ai/catalog/standards/sist/7a0a49eb-26d1-47dd-8308-](https://standards.iteh.ai/catalog/standards/sist/7a0a49eb-26d1-47dd-8308-221762afac7b/sist-en-60947-4-1-2002-a1-2003)

Low-voltage switchgear and controlgear –

Part 4-1:

**Contactors and motor-starters –
Electromechanical contactors and
motor-starters**

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Commission Electrotechnique Internationale
International Electrotechnical Commission
Международная Электротехническая Комиссия

CODE PRIX
PRICE CODE

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*Pour prix, voir catalogue en vigueur
For price, see current catalogue*

FOREWORD

This amendment has been prepared by subcommittee 17B: Low-voltage switchgear and controlgear, of IEC technical committee 17: Switchgear and controlgear.

The text of this amendment is based on the following documents:

FDIS	Report on voting
17B/1210/FDIS	17B/1237/RVD

Full information on the voting for the approval of this amendment can be found in the report on voting indicated in the above table.

The committee has decided that the contents of the base publication and its amendments will remain unchanged until 2005. At this date, the publication will be

- reconfirmed;
- withdrawn;
- replaced by a revised edition, or
- amended.

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CONTENTS

[SIST EN 60947-4-1:2002/A1:2003](#)

Modify, on page 5, the title of annex C to read: [http://standards.iteh.ai/catalog/standards/sist/7a0a49eb-26d1-47dd-8308-221762a6ac7b/sist-en-60947-4-1-2002-a1-2003](#)

Annex C Void

Add, on page 5, the titles of the new annexes E and F and the new Bibliography:

Annex E (informative) Examples of control circuit configurations

Annex F (normative) Requirements for auxiliary contact linked with power contact (mirror contact)

Bibliography

Delete, on page 7, the reference to table 11.

Page 11

Replace both fourth and fifth paragraphs by the following:

Annexes A, B and F form an integral part of this standard.

Annexes D and E are for information only.

Page 13

1.1 AC and d.c. contactors

Add, at the end of this subclause, the following new paragraph:

Contactors or starters with an electronically controlled electromagnet are also covered by this standard.

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2 Normative references

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Add, after IEC 60034-1:1996, the following references:

Amendment 1 (1997) [SIST EN 60947-4-1:2002/A1:2003](https://standards.iteh.ai/catalog/standards/sist/7a0a49eb-26d1-47dd-8308-221762a6ac7b/sist-en-60947-4-1-2002-a1-2003)
Amendment 2 (1999)

Add, after IEC 60076-1:1993, the following reference:

Amendment 1 (1999)

Add, after IEC 60269-2:1986, the following references:

Amendment 1 (1995)
Amendment 2 (2001)

Add, after IEC 60269-2-1:1998, the following references:

Amendment 1 (1999)
Amendment 2 (2002)

Add, after IEC 60947-1:1999, the following references:

Amendment 1 (2000)
Amendment 2 (2001)

Add, after IEC 60947-2:1995, the following references:

Amendment 1 (1997)
Amendment 2 (2001)

Add, after IEC 60947-3:1999, the following reference:

Amendment 1 (2001)

Add, after IEC 60947-5-1:1997, the following references:

Amendment 1 (1999)

Amendment 2 (1999)

Add, after IEC 61000-4-2:1995, the following references:

Amendment 1 (1998)

Amendment 2 (2000)

Add, after IEC 61000-4-3:1995, the following references:

Amendment 1 (1998)

Amendment 2 (2000)

Add, after IEC 61000-4-4:1995, the following references:

Amendment 1 (2000)

Amendment 2 (2001)

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Add, after IEC 61000-4-5:1995, the following reference:

Amendment 1 (2000)

Add, after IEC 61095:1992, the following reference:

Amendment 1 (2000)

Add, after CISPR 11:1997, the following reference:

Amendment 1 (1999)

Page 23

3.1.2 electromagnetic contactor

Add, after the definition, the following note:

NOTE The electromagnet may be electronically controlled (see 3.1.8).

Add, after 3.1.7, the following new definition 3.1.8:

3.1.8

electronically controlled coil for electromagnet

coil controlled by a circuit with active electronic elements

Page 51

5.5 Control circuits

Replace the existing text by the following:

Subclause 4.5 of IEC 60947-1 applies; moreover, for an electronically controlled electromagnet, 4.5.1 of IEC 60947-1 applies with the following addition.

The electronic part may form an integral part or a separate part provided it is an intrinsic function of the device. In both cases, the device shall be tested with this electronic part mounted as in normal use.

The characteristics of electronic control circuits are as follows:

- type of current;
- power consumption;
- rated frequency (or d.c.);
- rated control circuit voltage, U_C (nature: a.c./d.c.);
- rated control supply voltage, U_S (nature: a.c./d.c.);
- nature of external control circuit devices (contacts, sensors, optocouplers, electronic active components, etc).

Annex E gives examples and illustrations of different circuit configurations.

NOTE A distinction is made between the control circuit voltage U_C , which is the controlling input signal, and the control supply voltage U_S , which is the voltage applied to energize the power supply terminals of the control circuit equipment and may be different from U_C due to the presence of built-in transformers, rectifiers, resistors, electronic circuitry, etc.

Page 57

5.8 Co-ordination with short-circuit protective devices

Replace the existing text by the following:

The co-ordination of contactors and starters is characterized by the type, ratings and characteristics of the short-circuit protective devices (SCPD) that provide protection of the contactor and starter against short-circuit currents. Requirements are given in 8.2.5.1 and 8.2.5.2 of this standard, and in 4.8 of IEC 60947-1.